WE CLAIM:

1. An isolated and purified recombinant adenoviral vector, said vector comprising:

an adenoviral genome from which the E1A/E1B genes have been deleted;

a transgene coding for a stress related factor which is a heat shock protein or the adenosine A3 receptor; and

a promoter operably linked to said transgene, wherein expression of the transgene is controlled by said promoter.

2. The vector of claim 1, wherein said stress related factor is selected from the group consisting of HSP70i, HSP27, HSP40, HSP60, and the adenosine A3 receptor.

3. The vector of claim 1, wherein said promoter is a CMV promoter.

4. The vector of claim 1, wherein said promoter is a ventricular myocyte-specific promoter.

5. A method of producing an isolated and purified recombinant vector of claim 1, comprising the steps of:

cloning a transgene coding for a stress related factor into a plasmid containing a promoter and a polylinker flanked by adenoviral sequences of the left end of the human adenovirus 5 genome from which the E1A/E1B genes have been deleted;

co-transfecting said plasmid into mammalian cells transformed with the E1A/E1B genes, with a plasmid which contains the entire human adenoviral 5 genome, and an additional insert making the plasmid too large to be encapsulated, whereby rescue recombination takes place between the transgene-inserted plasmid and the plasmid having the entire adenoviral genome so as to create a recombinant genome containing the transgene without the E1A/E1B genes, said recombinant genome being sufficiently small to be encapsulated;

identifying cells comprising recombinant vectors in cell cultures;

propagating the resulting recombinant vectors in mammalian cells transformed with the E1A/E1B genes; and

~~purifying the propagated recombinant vectors.~~

6. The method of claim 5, wherein said plasmid into which the transgene is cloned is plasmid pAC1 or plasmid ACCMVPLPA.

7. The method of claim 5, wherein said identification comprises the steps of:

monitoring transfected cells for evidence of cytopathic effect;

treating the cell supernatant from cell cultures showing a cytopathic effect with proteinase K, followed by phenol/chloroform extraction and ethanol precipitation to isolate viral DNA;

identifying cells producing recombinant vectors with PCR using primers complementary to the CMV promoter and primers complementary to adenoviral sequences; and

purifying recombinant vectors using two rounds of plaque purification.

8. The method of claim 5, wherein said purification comprises the steps of:

propagating the resulting recombinant vectors in cells transformed with the E1A/E1B genes to titers in the 10^{10}-10^{12} viral particles range;

purifying the propagated recombinant vectors by double CsCl gradient ultracentrifugation; and

filtering the purified recombinant vectors through sepharose columns.

9. The method of claim 5, wherein said stress related factor is selected from the group consisting of HSP70i, HSP27, HSP40, HSP60, and the adenosine A3 receptor.

10. A method of elevating the level of stress related factor in the myocardium of a patient, comprising delivering a replication-deficient viral vector to the myocardium of a patient, wherein said vector comprises a transgene encoding a stress related factor, and wherein delivery is by intracoronary injection into the lumen of one or both coronary arteries of said patient.

11. The method of claim 10, wherein the stress related factor is a heat shock protein or the adenosine A3 receptor.

12. The method of claim 10, wherein said stress related factor is selected from the group consisting of HSP70i, HSP27, HSP40, HSP60, and the adenosine A3 receptor.

13. The method of claim 10, wherein the stress related factor is a heat shock protein or the adenosine A3 receptor, and wherein the vector is an adenoviral vector comprising a gene encoding said heat shock protein or the adenosine A3 receptor.

14. The method of claim 10, wherein said patient has non-revascularized ischemic heart disease and wherein said vector is administered a plurality of days prior to non-cardiac surgery.

15. The method of claim 10, wherein said vector is delivered at the time of a diagnostic catheterization a plurality of days prior to complex percutaneous revascularization.

16. The method of claim 10, wherein said vector is delivered at the time of a diagnostic cardiac catheterization.

17. The method of claim 10, wherein said vector is delivered at the time of a diagnostic coronary angiography.

18. The method of claim 10, wherein said promoter is a CMV promoter.

19. The method of claim 10, wherein said promoter is a ventricular myocyte-specific promoter.

20. The method of claim 10, wherein said vector is delivered in the form of a viral stock having a final viral titer of 10^{10}-10^{13} viral particles.

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